

DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch
690 Walnut Ave. St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4Cty: SF/Ala Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-016560**Date Inspected:** 27-Aug-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1900**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 700**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** See below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Tower and OBG Components**Summary of Items Observed:**

On this date Caltrans OSM Quality Assurance Inspector (QA Inspector) George Goulet was present during the times noted above for observations relative to the work being performed.

Bay 11

This QA Inspector randomly observed the following work in progress in Bay 11:

Heat straightening of EP3030B located on PCMK OBG edge plate. QC was identified as ZPMC CWI Qiu Wen (QC1). Heat treatment observed by this QA Inspector and recorded by QC1 appeared to comply with HSR(B)400 presented to this QA Inspector by QC1.

SMAW welding of weld joint WSD1-TL5-4B/F-3 located on PCMK west tower, lift 5, internal connection plate to skin D. Alternating welders were identified as 067656, 066413. QC was identified as QC1. Assisting QC1 at this location and appearing to be monitoring the welding and recording data was ZPMC QC Liu Dao Feng (QCA1), who was not a CWI. Welding variables recorded by QCA1 appeared to comply with WPS-B-T-3213-TC-U4c. Also present and appearing to be monitoring the welding operation was ABF Representative Cui Zheng Hua.

SMAW welding of weld joint WSD1-TL5-4B/F-24 located on PCMK west tower, lift 5, internal connection plates.

Alternating welders were identified as 066401, 066398. QC was identified as QC1. Assisting QC1 at this location and appearing to be monitoring the welding and recording data was QCA1, who was not a CWI. Welding variables recorded by QCA1 appeared to comply with WPS-B-T-3213-TC-U4c. Also present and appearing to be monitoring the welding operation was ABF Representative Cui Zheng Hua.

WELDING INSPECTION REPORT

(Continued Page 2 of 4)

Bay 10

This QA Inspector randomly observed the following work in progress in Bay 10:

SMAW welding of weld joint SSD1-TL5-1B-F-19 located on PCMK south tower, lift 5, internal connection plate to skin D. Alternating welders were identified as 500363, 056200. QC was identified as QC1. Assisting QC1 at this location and appearing to be monitoring the welding and recording data was ZPMC QC Li Peng Fei (QCA2), who was not a CWI. Welding variables recorded by QCA2 appeared to comply with WPS-B-T-3213-TC-U4c.

SMAW welding of weld joint NSD1-TL5-3B-F-23A located on PCMK north tower, lift 5, external connection plate to skin A at the skin E corner. Alternating welders were identified as 066258, 066361. QC was identified as ABF CWI Yang Yi Heng (QC2). Welding variables recorded by QC2 appeared to comply with WPS-B-T-3213-TC-U5b.

SMAW repair welding of weld joint NSD1-TL5-3B-F-17A located on PCMK north tower, lift 5, external connection plate to skin A. Alternating welders were identified as 070432, 067588. QC was identified as QC2. Welding variables recorded by QC2 appeared to comply with WPS- B-T-3213-TC-U5b.

SMAW welding of weld joint NSD1-TL5-3B-F-4 located on PCMK north tower, lift 5, internal connection plate to skin D. Alternating welders were identified as 067707, 068924. QC was identified as QC2. Welding variables recorded by QC2 appeared to comply with WPS-B-T-3213-TC-U4c.

Heavy Dock

This QA Inspector randomly observed the following work being performed on the Heavy Dock:

This QA Inspector observed ZPMC personnel loading various components onto the lift's 3, but no apparent welding related work was being performed on the Heavy Dock. All 4 tower lift's 3 were connected and positioned vertically on a base pedestal at end of the heavy dock. West and north towers, lift 2 were positioned horizontally near the end of the Heavy Dock. East tower, lift 2 was delivered to the Heavy Dock on this night on 4 Goldhofer lift vehicles.

Bay 9 – PMT

This QA Inspector monitored OBG Production Monitoring Test (PMT) #3177 for deck panels 14W-DP3177(PL3490A/B)-001 and 14W-DP3176(PL3489A/B)-001 at Gantry #1. Prior to the start of the PMT, this QA Inspector observed the root openings to be within the 0.0mm to 0.5mm tolerance. The magnetic particle test (MT) of the tack welds was noted on the test panel as having been performed by MT Technician Liu Zhang Min on 8/27/10. The visual inspection of tack welds and root gaps was performed by ABF CWI Huang Wen Guang (PABF) and this QA Inspector. The tack welds and root gaps appeared to be within prescribed tolerances. This QA Inspector observed that the deck plate of the test panel was 20mm thick and the deck plate of the production panels were 20mm thick. This QA Inspector observed that the test panel was generally representative of the production panels. The ambient temperature was approximately 27°C. Welders were identified respectively, from position 1 through 6, respectively, as follows: 059443, 201788, 059403, 059416, 059418, 059421. ZPMC personnel used an oxy-fuel torch to preheat the specimens to above 60°C and the interpass temperature was still above 60°C without additional heating, in conformance with WPS-B-T-2342-U1-(U-rib)-5. The start time for

WELDING INSPECTION REPORT

(Continued Page 3 of 4)

welding of the 3–12mm x 20mm specimens was approximately 0015 hours on 8/28/10 and the finish time was approximately 0034 hours. This QA Inspector randomly verified and documented the welding amperage, voltage, and travel speed during the gas metal arc welding (GMAW) and submerged arc welding (SAW) processes, welds 1 thru 6 at the completion of both the GMAW root pass and SAW cover pass. The welding variables recorded by PABF appeared to comply with WPS-B-T-2342-U1-(U-rib)-5. The welds were visually inspected by PABF and this QA Inspector. PABF informed this QA Inspector that all six welds were acceptable and after random inspection this QA Inspector concurred. This QA inspector randomly witnessed ZPMC ultrasonic testing (UT) inspector, identified as Xu Wei, perform UT on each of the 500 mm test welds for depth of penetration and conformance. See photo below of UT in progress. This QA Inspector selected fifteen designated locations for macroetch sampling per contract requirements. Each macroetch sample location was stamped by ZPMC personnel with the number 3177, a number 6, chosen randomly by this QA Inspector as a verification mark, and an individual progressive macroetch identifying number for each macroetch sample. See photos below. After removal from each of the weld test specimens, polishing, and acid etching of the selected end, the macroetch samples were evaluated using a 7X optical magnifier and accepted by PABF and this QA Inspector.

All fifteen sample macroetch samples appeared to meet requirements and were noted to appear acceptable. See Caltrans U-ribs PMT Inspection Sheet, ZPMC Production Monitoring Test Plate Inspection Report, and Caltrans Macro Etch Log - all dated 8/28/2010 for additional information.

Unless otherwise noted, all work observed on this date appeared to generally comply with applicable contract documents.



Summary of Conversations:

As noted above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Micheal Ng, 159-2184-5703, who represents the Office of Structural Materials for your project.

WELDING INSPECTION REPORT

(Continued Page 4 of 4)

Inspected By: Goulet, George

Quality Assurance Inspector

Reviewed By: Dawson, Paul

QA Reviewer